Effectiveness and Challenges of Protection Activities in Old Oyo National Park, Nigeria

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Abstract
Protection activities in Old Oyo National Park was studied through interview and questionnaire administration in Tede, Marguba, Oyo-ile and Sepeteri ranges. The statistical population was the rangers in the four ranges out of which twelve rangers were selected in each of the range. Data were analyzed using descriptive statistics. Result showed that the protection staff carried out diverse protection activities ranging from anti-poaching patrol to boundary monitoring, and conservation education. The area covered by a ranger is 17.6km^2 which is far beyond the IUCN recommendation of 5km^2. The protection staff undergo training at least once in a year to increase their knowledge on how to effectively protect and manage the wildlife resources. The major challenges facing the effectiveness of protection activities were inadequate staff, lack of equipment and insufficient funding. Recommendations were made on the need to increase protection staff strength for effective policing of the park as well as enlightening the local residents on conservation.

Key words: Protection, Anti-poaching, Surveillance, Park ranger, Patrol, Effectiveness

Introduction

Africa is unique among continents due to the richness of biodiversity and variety of wildlife. The need to balance the requirements for food and land development led to competition for available resources. Also, development of for socio-economic infrastructure associated with increase urbanization and industries has put pressure on fixed resources. All these necessitated the destruction of habitats for wild animal which in turn led to extermination of these animals. (Hulme, *et al*, 2001).

Since the turn of this century, there have been increasing efforts at encouraging conservation and preservation of wildlife as reflected in the number of organizations involved in the activities throughout the world. Majority of these are financed by private organizations. Wildlife conservation therefore includes all human efforts directed at preserving wildlife and their natural habitats so as to save them from extinction. This is in recognition of the significant roles which animals have played in the life and development of man (Onyeanusi, 2004). The conservation activities include protecting genetic resources, preservation of breeding stock, maintaining natural balance of ecosystem, tourism and ecotourism (Adewoye, 2007). Habitat destruction seems to be the greatest threat facing many wildlife species, others include, excessive hunting, deforestation, farming, over-grazing, trapping, logging, fishing, vegetation destruction, destruction of cultural, historical and archaeological features and poaching as well as changes in habitats and land use have results in the decline in the numbers and geographical changes of many species especially those value for food and trophies (Happold, 1978).

In Nigeria, due to poverty and lack of understanding of the importance of the wildlife resources, communities surrounding protected areas hunt wild animals for food

and other purposes. In recent times, one of the problems that wild animal face is excessive hunting from the poachers, and nomadic Fulanis who usually graze extensively in most national parks. In Nigeria, realizing the need to further protect the resources from these threats, the management of the park therefore proposed more protective measure to be put in place in securing the life span of wild animal species. The extent to which this has been implemented necessitated this project work. The research will also highlight various ways through which Old Oyo National Park protection activities is carried out to protect the ecological resources in the Park and also provides alternative to the management conceptual framework for Old Oyo National Park in reducing the effect of illegal activities in the different zoning system in Old Oyo National Park.

Materials and Methods

The study was carried out in four selected ranges (Tede, Marguba, Oyo-ile and Sepeteri) of Old Oyo National Park. The Park has a total land mass of 2,512kmsq and is located in the northern part of Oyo State South-West of Nigeria, on latitude 8^0 15' - 9^0 00N and longitude 3^0 35' - 4^0 42' E. (Fig 1).

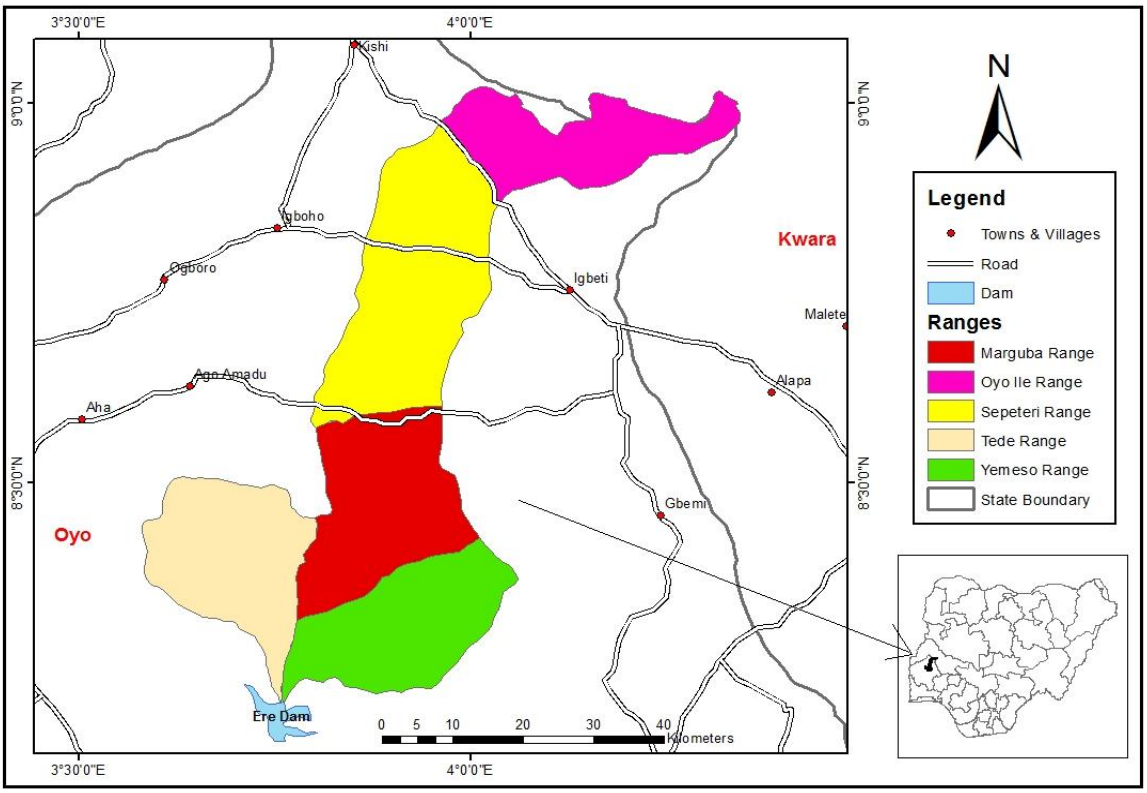

Fig 1: Map of Old Oyo National Park

Annual rainfall in the Park ranges between 900 mm and 1500 mm and annual temperature is between 12°C and 37°C. The rainy season starts in April through September with the highest rainfall recorded between July and August. The dry season begins in October through early April while the hottest period is between March and April.

The vegetation of the old Oyo National Park is southern guinea savannah but with recent more intense studies, classified the southern portion has been identified as forest savannah Mosaic with wooded savannah containing relics of moist semi deciduous forest grading northwards into drier mixed leguminous wooded savannah with a

continuous lower stratum of perennial grasses. Charter (1970)

Data collection

Data were collected from primary and secondary sources. The primary data were collected through the use of structured questionnaire which was self-administered by the rangers while the secondary data were information obtained from the management of Old Oyo National Park and other relevant publications. There are five ranges in Old Oyo National Park with each range divided into two beats making a total of ten (10) beats. The statistical population was the rangers in the four ranges selected for the study; twelve 12 rangers were selected from each of the four ranges making a total of 48 rangers. Information on total staff strength, total protection staff were obtained from the Management Information Unit (MIU) at the Park Head Office. The statistical analysis of the data involves descriptive tools in form of frequencies, means, medians and percentages

Results

Demographic Information

The demographic characteristics showed the highest percentage (58.3%) of protection staff in Old Oyo National Park was between 31-40 years while 22.9% and 16.7% were within the age group of 21-30 years and 41-50 years respectively. Also, majority (97.9%) were male and 2.1% were female, educational level revealed that 75% of the rangers were National Diploma graduates, 20.8% were secondary school certificate holders while only 4.2% had Bachelor of Science (B.Sc.) degrees holders (Table 1).

Staff strength and management information

The total staff strength in the Park was two hundred and seventy nine (279) out of which one hundred and forty three (143) were protection staff. Ranges and beats in the park are Yemoso, (Gboguro and Oloka) beats; Oyo-Ile (Ogundiran and Sooro); Sepeteri (Alaguntan and Abaja); Marguba (Ibuya and Ajaku); and Tede (Tede and Balelayo). (Table 2) All the protection staff attested to the existence of laws protecting the resources in the Park (Fig 2). Some of these laws relating to the establishment and governance of the Nigeria National Park Service have been repealed over the years (Table 3).

Table 1: Demographic Information of the Respondents

Variables	Frequency	Percentages
Age (Years)		
21-30	11	22.9
31-40	28	58.3
41-50	8	16.7
50-60	1	2.1
Gender		
Male	47	97.9
Female	1	2.1
Education Level		
SSCE/WASCE/GCE	10	20.8
Diploma	36	75.0
B.Sc.	2	4.2

Source: Field Survey, 2016

Table 2: The Ranges and their respective beats in Old Oyo National Park

No.	Ranges	Beats	Station
1	Yemosho	Oloka, Gboguro	Ikoyi ile
2	Oyo-ile	Ogundiran, Sooro	Igbeti
3	Sepeteri	Alaguntan, Abaja	Igboho
4	Marguba	Ibuya, Ajaku	Ajaku
5	Tede	Tede, Balelayo	Tede

Source: Field Survey, 2016.

Table 3: Laws protecting the Wildlife Resources in the Nigerian National Parks

No	Laws Protecting the Wildlife Resources in the Nigeria National Parks	Status
1	Decree 46 of 1979	Repealed
2	Decree 36 of 1991	Repealed
3	Act Cap 46 of 1999	Repealed
4	Act Cap 65 of 2004	Active
5	National Park Service Amendment Act of 2006	Active

Source: Field Survey, 2016

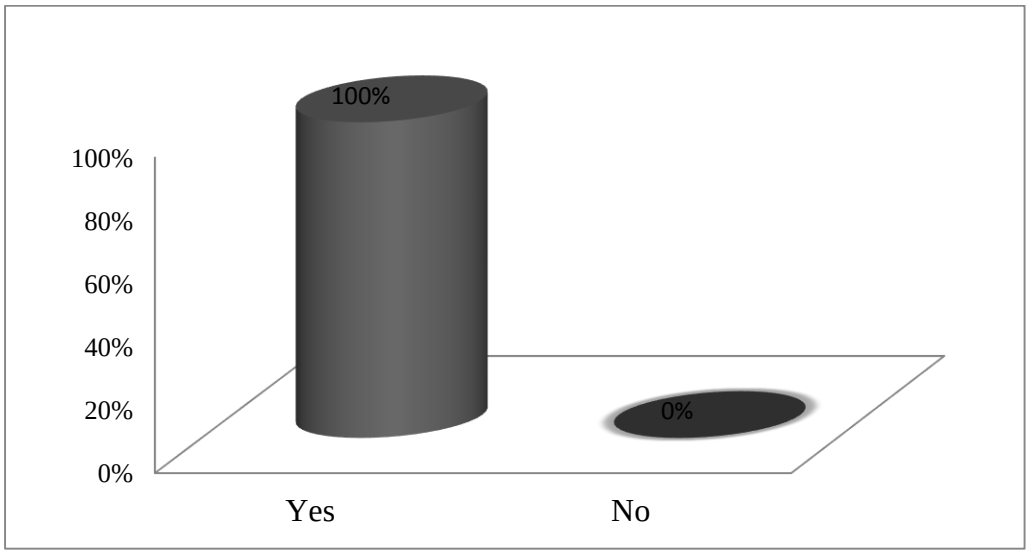

Figure 2: Availability of Laws Protecting the Resources in the Park
Source: Field Survey, 2016

Threats on Resources in Old Oyo National Park

The major threats faced in the ranges of Old Oyo National Park differ based on anthropogenic activities; (Fig 3). Hunting was the largest threat (21%), followed by logging (17%), cattle grazing by Fulani herdsman (15%) and farming inside the Park (11%). Other threats on wildlife resources include fishing (8%), honey harvesting (8%), mining (6%), charcoal making/fire setting in the Park (6%), collection of seeds/herbs from the Park, removal of archaeological/cultural features from the Park (2%), and the menace of armed robbers using the Park as hideouts (2%).

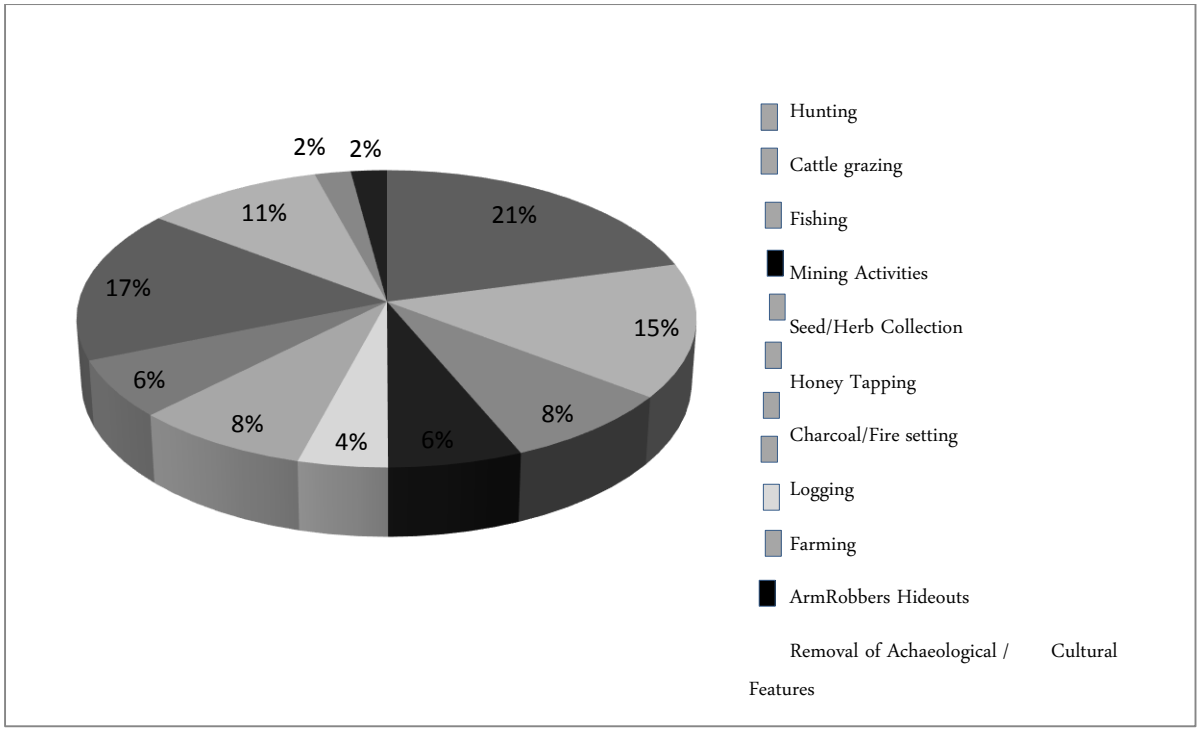

Figure 3: Threats on the resources in Old Oyo National Park
Source: Field Survey, 2016

Protection activities identified in Old Oyo National Park

The activities carried out for protection in Old Oyo National Park were identified as patrolling (75%), boundary demarcation (12.5%), conservation education and awareness (12.5%) (Fig 4). Anti-poaching patrol is the most frequent and efficient patrolling being carried out in the Park (35%). Other patrolling types include surveillance patrol (25%), ambush laying (10%); joint patrol (8%), monitoring (7%), night patrol (6%) and mobile camping (9%) (Fig 5).

The categories of staff responsible for protection activities in Old Oyo National Park are Park rangers, Park Inspectors and Park wardens (Table 4). The protection staff strength of the Park is presented in Fig 6. Oyo Ile Range has the highest number (24 protection staff) followed by Marguba Range (19), Tede Range (17), and Sepeteri Range (16). More than half of the respondents (52.1%) of the respondents stated that protection activities were carried out three times within a week in the Park while (39.6%) indicated that protection activities were carried out daily (Fig 7).

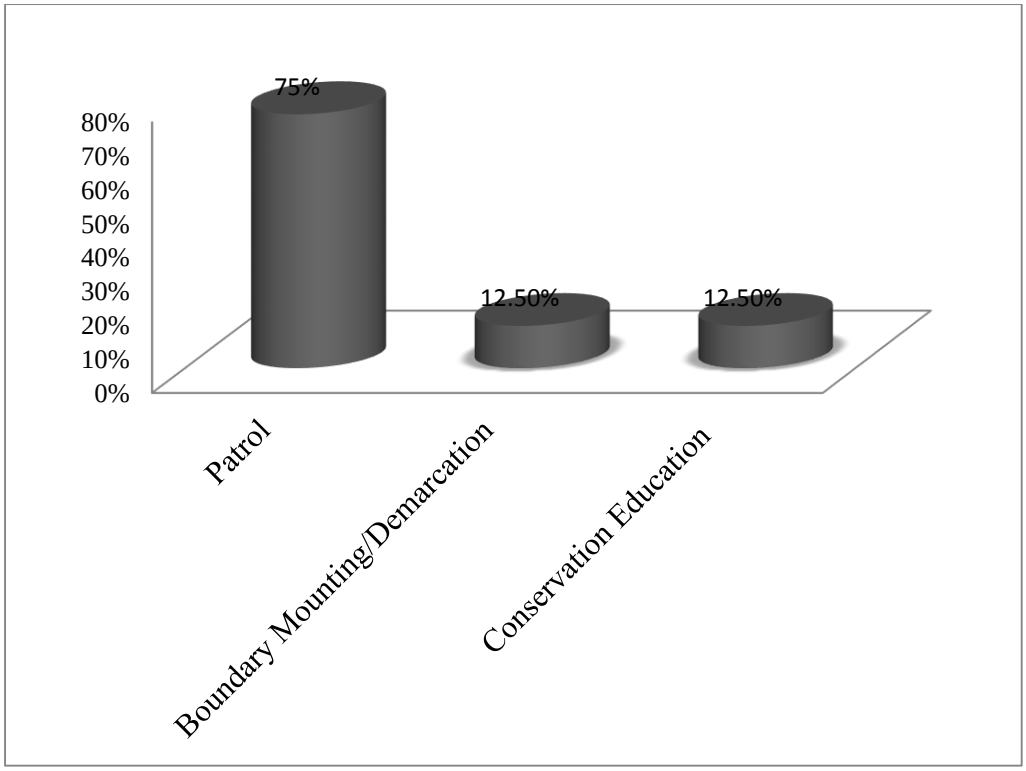

Fig 4: Protection activities in the park
Source: Field survey, 2016

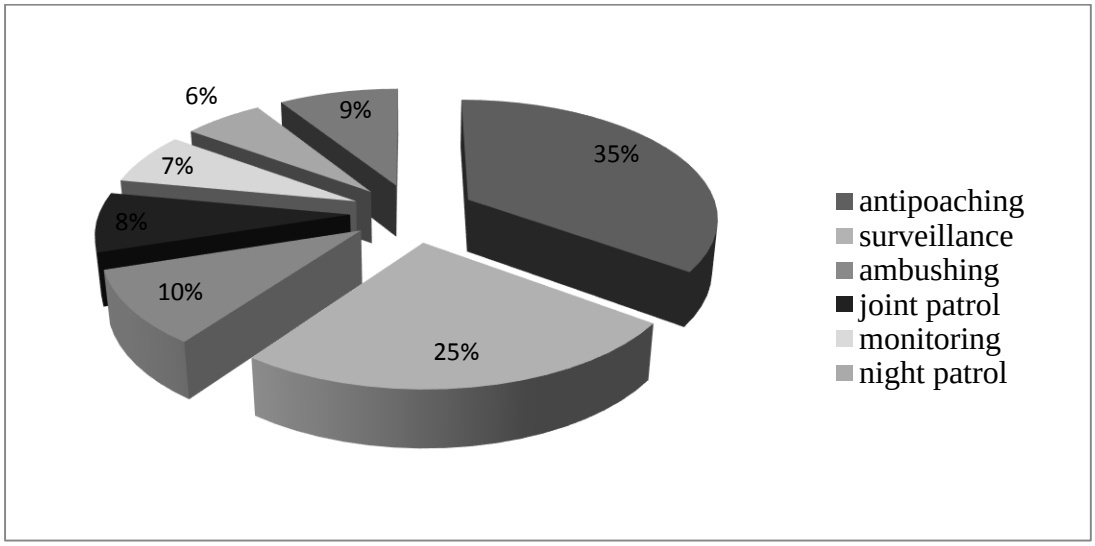

Figure 5: Protection activities carried out in Old Oyo National Park
Source: Field Survey, 2016

Table 4: Categories of Protection Staff in Old Oyo National Park

No.	Categories of Protection Staff in Old Oyo National Park
1	Park Rangers
2	Park Inspectors
3	Park Wardens

Source: Field Survey, 2016

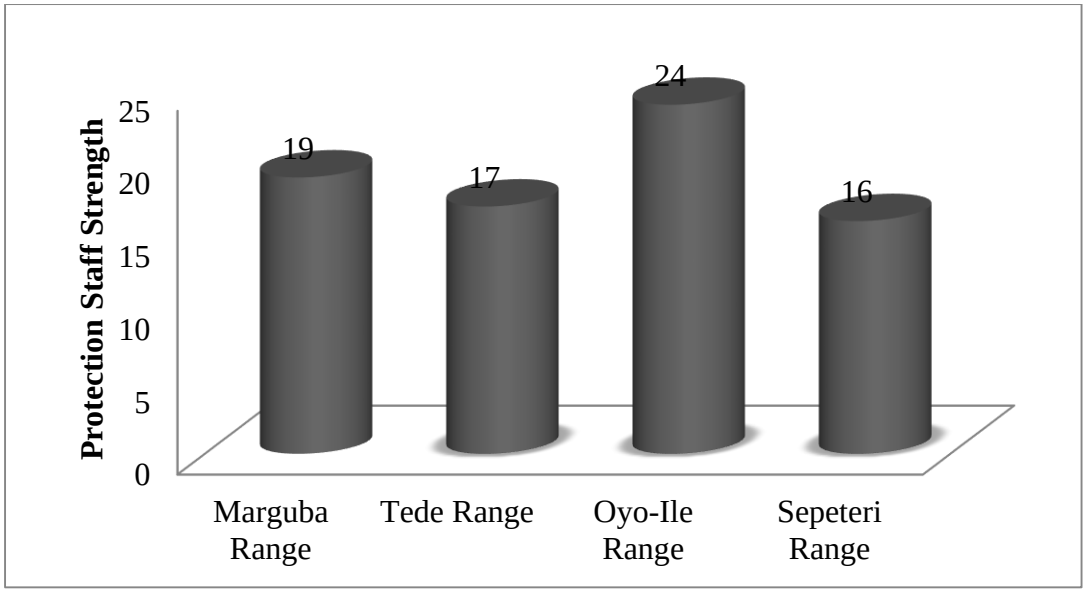

Figure 6: Protection staff strength in the four ranges of Old Oyo National Park
Source: Field Survey, 2016

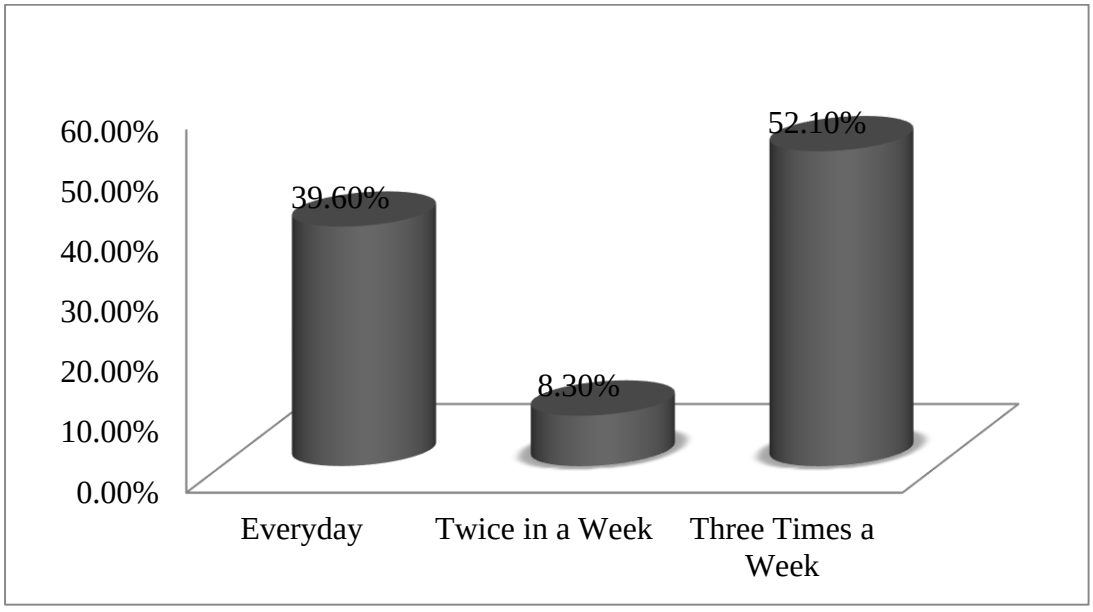

Figure 7: Frequency of protection activities in Old Oyo National Park
Source: Field Survey, 2016

Challenges to Effective Protection Activities in Old Oyo National Park

Fig 8 presents the challenges to effective protection activities in the Park. Inadequate number of staff was identified as a challenge to effective protection by 23% respondents, 17% each identified the lack of equipment/material and lack of incentives to motivate protection staff: the other challenges were insufficient funding (11%) and removal of park boundary signs /demarcations (8%). Some other challenges which had lower weights include terrain of the Park, (poor jeep track), outdated/short frequency communication equipment, unfavourable government and management policies, aggrieved communities and lack of stiffer penalties on offenders.

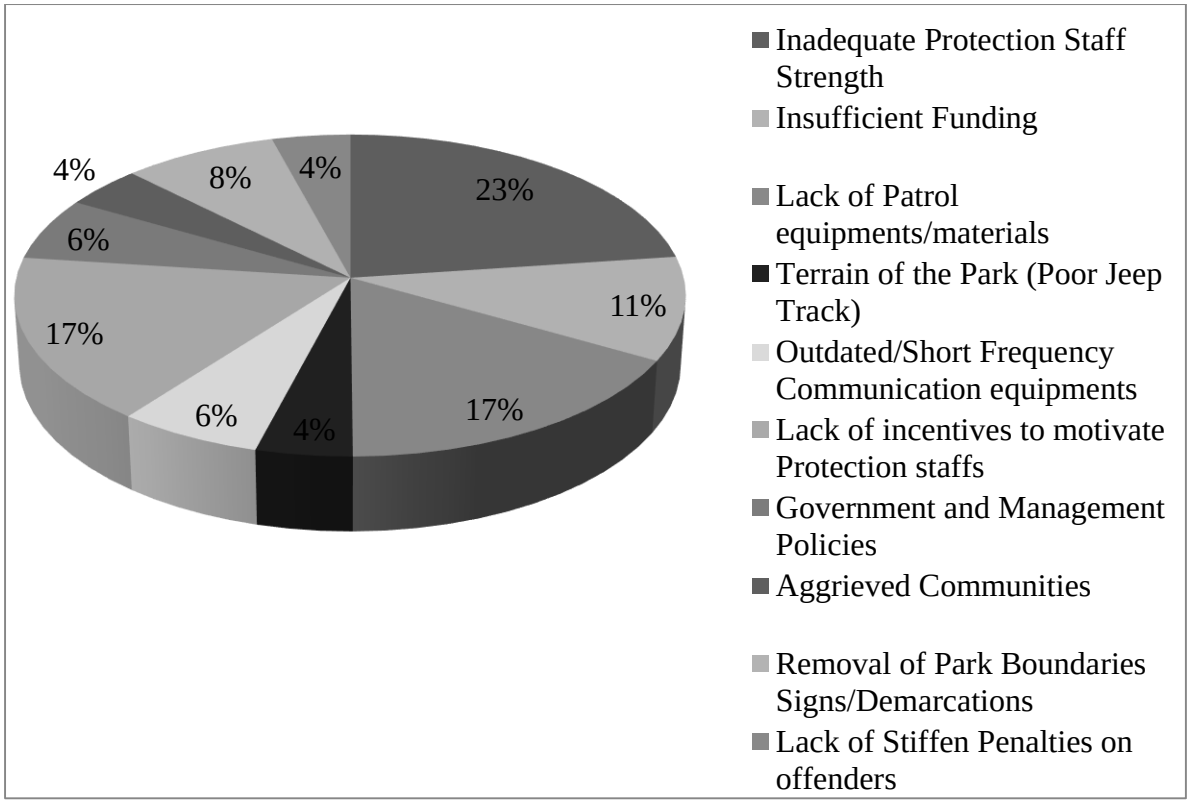

Fig 8: Challenges to effective protection activities in Old Oyo National Park
Source: Field Survey, 2016

Effectiveness of Protection Activities

The Park Head of Department submitted that the area coverage of the four ranges was between 450 – 500 km^2. The respondents stated that at least 5-7 rangers per beat go for protection activities on each range. The area covered by each ranger during protection activities inside the Park was therefore calculated using the formula below:

$$Area\ covered\ by\ Rangers = \frac{Total\ Area\ covered}{Total\ number\ of\ rangers}$$

Since there are presently 143 park protection staffs in the Park, (including the staff at the five ranges, head office and Akoto base camp), the area covered by the ranger is

$$Area\ covered\ by\ Rangers = \frac{2512}{143} \qquad = 17.6\ km^2$$

Therefore, protection through surveillance as revealed by this study surely is a challenge to the management of Old Oyo National Park because each ranger covered an area of 17.6 km^2 as against International Union for Conservation of Nature (IUCN) Standard 5 km^2 to a ranger for effective protection.

Table 5 shows the area covered by each ranger in the four selected ranges. Majority (96%) of the respondents affirmed the availability of in-service training for rangers (Fig 9), 54.2% of the respondents stated that workshop are made available for the rangers, 25% stated that they undergo in-service training, 14.6% stated that they partake in conferences (Fig 10). A larger percentage of the respondents stated that they undertake the trainings on yearly basis (Fig 11), also 52% of the respondents stated

that 6-10 rangers often partake in the training within a year (Fig 12). Information gathered revealed that Marguba Range covers an area of 500 $km^{2,}$ Tede 450 $km^{2,}$ Sepeteri 500 km^2 and Oyo Ile 500 km^2.

Table 6: Park Protection Staff in Old Oyo National Park

Range	Location	Park Protection Staff		Total
		Current	Additional	
Marguba	Ajaku	10		
	Ibuya	15	19	44
Oyo-ile	1. Ogundiran (Along Banni Road)			40
	2. Sooro (Igbeti, along Kisi Road).	20	20	2 Ranger Post
Tede	Tede	15	14	29
Sepeteri	1. Alaguntan (Along Igbeti-Igboho Road).			31
	2. Abaja (Orire L.G)	17	14	2 Ranger Post
Yemosho	1. Gbogburo	19	17	36
	2. Oloka in Orire L.G			2 Ranger Post
	Oyo (Rangers on Guard)	18	-	18
Head Office	Research	7	-	7
	Litigation	5	-	5
	Conservation	8	-	8
	Museum	3	-	3
Akoto base camp	Rangers on Guard	6	-	6
	Total	143	84	227

Source: OONP, 2014

Park Protection Staff in Old Oyo National Park

Park protection staff provides the overall basis for the conservation of flora and fauna in Old Oyo National Park. However, Park records revealed that the protection staff level of 110 in 2004 rose to 143 in 2008 bringing the ranger/Park ratio to 1:18 which is far below the 1:10 international best practice levels (IUCN, 1998). Consequently, a total of 251 Park rangers are required to achieve the standard level. An additional 108 rangers to the present ranger staff strength is considered excessive in the light of the Park's dwindling financial state (OONP, 2014). However, the recent management plan for the Park suggests that the present number of rangers should be increased to 227; which is considered adequate for effective Park protection in the Park (Table 6).

Field Equipment for Old Oyo National Park

Table 7 shows the field equipment for Old Oyo National Park. The Park has made substantial investment in the procurement of surveillance equipment as indicated by 57 different antipoaching equipment currently in use for surveillance operations in the Park. However, these are not adequate for effective patrols because in most cases the highly sophisticated weapons of poachers overwhelm Park rangers during field activities. The communication equipment is short frequency models covering only short ranges.

Table 7: Field Equipment in Old Oyo National Park

No.	Equipment	Type	Qty.	Condition/state
1	Guns	Double Barrel	30	27 functional, 3 bad
		Pump action	5	Functional
		Locally mage single Barrel	21	Functional
		Rifle	1	Functional
2	Communication	Walkie Talkie	24 pairs of Unidem & 10 pieces of Motorola	Functional but of a very low range
		Multi-channel Radio	3	Functional
3	Handcuffs and leg cuffs	Handcuffs	38	Functional
		Leg cuffs	1	Bad
4	Global Positioning System	GPS	12	9 functional, 3 bad

Source: OONP, 2014

Discussion

This study showed that majority of the protection staff of Old Oyo National Park were male. This is consistent with the findings of Ogunjobi *et al.* (2010) that 94% of the protection staff at Cross River National Park, Nigeria were male. This attests to the fact that women have fewer opportunities to participate in making environmental decision. This is a departure from recommendation of SCDB (2004) on ensuring gender equity in protected area management for achieving the Millennium Development Goals. Although, the nature of the protection work in Nigeria requires some degree of toughness that females can hardly endure, it is however necessary that a level of gender balance be met. A higher percentage (58.3%) of the protection staff at Old Oyo National Park was within 31-40 years of age which agrees with Ogunjobi *et al.* (2010) that a higher proportions (49%) of protection staff of Cross River National Park was within 31-40 years. This shows that the core of the protection staff were in their youthful age and so would be more dexterous and have the tendency, they are dexterous and have tendency to cope and deliver the conservation objectives (Spector, 1997). Furthermore, 75% of the protection staff had National Diploma (ND) degrees which differs from Ogunjobi *et al*, (2010) that only 39% of the protection staff in Cross River National Park, Nigeria were secondary school certificate holders.

The major threats faced in Old Oyo National Park consisted of different anthropogenic activities, such as hunting, logging, cattle grazing, farming inside the Park, fishing, honey harvesting, mining, charcoal making/fire setting, collection of seeds/herbs from the Park and removal of archaeological/cultural features. Oyeleke *et al.* (2015) had identified hunting, grazing, fishing, mining, honey harvesting, farming and logging as some of the threats facing biodiversity conservation in Old Oyo National Park. This findings also agrees with Ijeomah *et al.* (2013) that livestock grazing, mining, hunting, conspiracy, fishing, fuel wood/charcoal, farming and lumbering were the major threats facing Kainji Lake National Park.

Adetoro *et al*. (2011) documented that consistent reduction of wildlife biodiversity in Old Oyo National Park should be a source of concern to the Park management. The reasons for encroachment into most protected areas being because of the limited resources with numerous users: farmers need more fertile land for cultivation,

herdsmen need fodder for their animals, poachers need meat and money while the park authorities consider conservation of biological diversity as priority.

Anti-poaching patrol is the major protection activity carried out in the Park while others are boundary mounting/demarcation and conservation education and awareness. This agrees with Oyeleke *et al.* (2015) that anti-poaching patrol, boundary assessment, conservation education and annual bush burning exercises were the major management strategies put in place in Old Oyo National Park for animals and habitat management.

Since the major threats affecting the wild animals are anthropogenic, conservation education and awareness program is another programmes are usually conducted round the villages and town surrounding the park (support zone communities) to enlighten them on conservation issues and gain their support. Concerted efforts must be put in place to prevent depletion of wildlife resources, such efforts include setting harvest limits and methods, protecting wildlife habitats, educating the public, enforcing game laws, researching into wildlife ecology and mitigating human-wildlife conflicts.

The protection staff strength in Old Oyo National Park is below the international standard of IUCN which will greatly affect the effectiveness of the protection activities. The area covered by each ranger is 17.6 km^2 which poses a big challenge to the management of Old Oyo National Park in the effective implementation and protection activities needed for the surveillance of 2,512 km^2 area. Also, the area covered by protection staff in Old Oyo National Park is far above the IUCN standard of 1 Ranger per 5000 m^2 (5 km^2). Due to insufficient number of rangers and logistic problems, patrol groups are made cover large areas and the areas covered are relatively small compared to the total area of the Park. Transport is particularly important because the combined foot and vehicle patrols tended to cover larger areas and proved to be more effective in locating and arresting poachers. Lameed and Olujide, (2010) noted that protection staff in Parks should be high in number with the main function of total surveillance, apprehension, and prosecution of any unauthorized intruder or offender of the regulation.

The study shows that 52.1% of the protection staff at Old Oyo National Park carried out 1 -3 patrols in a week which agrees with the findings of Oyeleke *et al.* (2015) that patrol exercise a major management practice in the park is usually done daily and three times weekly depending on the available information on illegal activities within the ranges. The patrol is carried out using field vehicles, motorcycles and most of the time on foot and overnight camping, moving from one strategic location to another where destructive activities are high depending on information obtained about poaching activities. Intensive patrol requires daily patrol to curb poaching menace within the ranges as shown by Nahonyo, (2005) that anti-poaching patrol was carried out daily and weekly basis in Ruaha National Park in Tanzania. Haruna *et al*. (1996) also stated that restoration of depleted population of large mammals in Nigeria National Parks would require intensive and extensive anti-poaching patrol programme.

Majority of the respondents affirmed the availability of in-service training for rangers in OONP which is consistent with the Participatory Management of Old Oyo National Park, (OONP, 2014) that thirty-one (31) staff benefited from various levels of training, out of which twenty two (22) of the beneficiaries were staff of Park Protection and Conservation while the others were from the Administrative cadre. The courses undertaken ranges from HND and OND in Wildlife Management and paramilitary training in the Park. The courses covered were in natural history and identification of animals, vegetation, law enforcement and management/resolution of conflicts with local communities, the courses also covered anti-poaching techniques and the use of

firearms. Ogunjobi *et al.* (2010) reported that staff' in Park Protection and Conservation Department of Cross River National Park were sponsored on conference, further in-service training, internal capacity building and protection staff's training.

The major challenges faced in include inadequate protection staff, lack of patrol equipment/material and lack of incentives to motivate protection staff insufficient funding, removal of park boundary signs/demarcations, terrain of the Park (poor jeep track), outdated/short frequency communication equipment, unfavourable government and management policies. Ijeoma and Ogbara, (2013) had reported that insufficient number of staff in stations and ranges in Kainji Lake National Park makes it difficult for basic management practices to be effectively carried out and can lead to over utilization of workers, and fear of being out-numbered by poachers. Inadequacy of facilities for coordination and delays in supplying them hinder scheduled anti-poaching activities. Essential facilities such as walkie-talkie for effective communication can ensure coordination and general motivation of staff are still lacking or inadequately supplied in Kainji Lake National Park. (Ijeoma and Ogbara, 2013).

In Kenya and Tanzania where wildlife is a major sector of their economy, helicopters are utilized in anti-poaching patrol activities. The safety of workers is very important in the general motivation and effectiveness of staff in discharging their duties. Thus the insecurity of rangers remains a major challenge to wildlife conservation. The nature of work in National Parks subject rangers to high risks. Ijeoma and Ogbara (2013) reported an incident where a ranger was injured in Kainji Lake National Park and it took many hours before he could get medical attention. There was the report of a ranger charmed while attempting to arrest a poacher, who was only freed at the intervention of colleagues. Adetoro *et al.* (2011) reported that a ranger was killed and another ranger wounded by a suspected hunter. Also, Kemf (1993) reported the killing of a park worker by villagers in the Indian Tiger Reserve. Ijeomah (2012) reported that a game guard was killed at Pai River Game Reserve in Plateau State, Nigeria by poachers. Inadequate provision of security facilities demoralize rangers and places them at a disadvantaged and very risky situation when in contact with poachers.

The poachers in East Africa are often equipped with modern security and operational gadgets such as Global Positioning System (GPS), night vision goggles and AK-47 rifles and are hardly afraid to shoot at ‘anything’ whether animals or rangers who attempt to hinder them from accomplishing their mission (African Wildlife Foundation, 2012).

The efforts to control illegal activities are also undermined by lack of adequate funding and equipment. There are also logistical problems associated with patrolling in the park. Most of the roads are seasonal such that transporting rangers to distant and remote patrolling areas tend to be difficult during the wet seasons. Consequently, few areas are being more frequently patrolled than others as earlier reported by Nahonyo, (2005) in Ruaha National Park, Tanzania who reported that lack of funding, equipment as major problem hindering patrol activity.

Conclusion

The National Parks are responsible for the conservation, protection and preservation of the biodiversity such that protection is the cardinal role in the effective management of wildlife resources. The study showed that the major threats facing Old Oyo National Park were various forms of anthropogenic activities which include hunting, logging, grazing by herdsmen, fishing, and farming inside the Park, honey harvesting, firewood collection as well as charcoal making. The main protection activities are anti-poaching

patrol, boundary monitoring, and conservation education among others. The protection staff strength fell short of international standard of 5 km^2 per ranger while the area covered by a ranger exceeds the recommendation of IUCN. The large area meant for each ranger to cover implies ineffectiveness of protection in in Old Oyo National Park because some areas will be neglected. Finally, the concerted efforts of protection staff in 10 years had led to the arrest of 1277 offenders but the effectiveness of protection is affected by inadequate staff, lack of equipment is another hindrance towards effective protection of the resources at the Park, and where available, has become obsolete and dysfunctional. The firearms used by rangers are old and not sophisticated enough to combat the poachers thereby putting rangers at serious risk.

Recommendations

The protection staff strength of Old Oyo National Park should be increased to meet the IUCN Standard of 1 Ranger per 5000 km^2. Also there should be regular and effective anti-poaching patrol to curb series of threats in the Park. Since majority of the rural dwellers are illiterates, conservation education in terms of extension service should be improved upon so as to imbibe the culture of conservation for sustainable development. Park boundaries should be clearly demarcated to guard against the unusual excuses of park encroachment attributed to lack of clear-cut boundary demarcation

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